PERIODICAL

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COLUMNARIS DISEASE OF FISHES

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INTRODUCTION

Columnaris disease attacks many species of fresh-water fishes. Also known as "Cotton Wool" or "Mouth Fungus" disease of aquarium fishes.

IDENTIFICATION

Presence of grayish-white spots or areas on head, gills, fins, dorsal and lateral sides of the fish. Superficially resembles a fungus infection. The skin lesions change gradually to shallow ulcerations and fins may become frayed. Sometimes necrotic areas on the gills. In later stages infection may become systemic and causative bacteria can be demonstrated and isolated from internal organs. Diagnosis best can be made by scraping material from lesion and examination in living state in a drop of water. Presence of slowly oscillating long thin bacteria which congregate, while examined, in columns (name) is important for diagnosis. Special media needed for isolation.

CAUSE OF THE DISEASE

Gram negative, long, thin, flexible bacteria. Arrangement in columns on fragments of infected tissues is characteristic. On special media they produce microcysts (Chondrococcus columnaris) or may have none (Cytophaga columnaris). These bacteria belong to slime bacteria (Myxobacteriales). There are cold-water forms which infect salmonid fishes and warm-water forms which attack warm-water and aquarium fishes.

SOURCE AND RESERVOIR OF INFECTION

Not established, but most likely soil, water containing some organic matter, and infected fish.

MODE OF TRANSMISSION

Probably through water or from fish to fish.

INCUBATION PERIOD

Not known. Disease may take an explosive course in very hot and dry weather.

PERIOD OF COMMUNICABILITY

Unknown.

1/ Headquarters: Eastern Fish Disease Lab., Leetown (P.O. Kearneysville) West Virginia

SUSCEPTIBILITY AND RESISTANCE

Disease has been described from many species of freshwater fishes. Scaleless warm-water fish are particularly susceptible. High water temperature decreases fish resistance to this disease.

RANGE

Best known in America. Excessively hot summer temperatures are favorable for outbreaks of this disease in warmwater fishes.

OCCURRENCE

Common during the summer months. The cold-water form may be present in salmon and trout hatcheries year around.

METHODS OF CONTROL

A. External infections. Dips in copper sulphate 1:2,000 for 1-2 minutes. Prophylactic dips in malachite green 1:15,000 for 10-30 seconds. Pyridylmercuric acetate 2 p.p.m. in 1 hour prolonged treatment may be successful. In warm-water ponds copper sulphate at 1 p.p.m. should be tried. In aquarium fishes Aureomycin (chlortetracycline) at 10-20 p.p.m. or chloramphenicol (Chloromycetin) 5-10 p.p.m. is recommended.

B. Systemic infections. Sulfamerazine or sulfadiazine at the rate of 10-12 grams per 100 pounds of salmonid fishes per day administered with food. The effect of treatment only slightly beneficial. Treatment with antibiotics has not been tried but some antibiotics are likely to be beneficial.

ANNOTATED BIBLIOGRAPHY

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1951. The use of PMA in treating columnaris. Prog. Fish-Cult., Vol. 13, pp. 103-104.
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* Davis, H. S.
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1945. Columnaris as a disease of cold-water fishes. Trans. Am. Fish. Soc., Vol. 73, pp. 32-36.
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Johnson, H. and Brice, R. F.

* A. 1952. Observations on columnaris in salmon and trout. Prog. Fish-Cult., Vol. 14, pp. 104-109.

* B. 1953. Further observations on columnaris in salmon and trout. Prog. Fish-Cult., Vol. 15, pp. 183-185.

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Ordal, E. J. and Rucker, R. R.

1944. Pathogenic myxobacteria. Proc. Soc. Exper. Biol. and Med., Vol. 56, pp. 15-18.

Excellent description of Chondrococcus columnaris, its life cycle and pathogenicity.

Slater, D. W.

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A brief paper on treatment of an outbreak of this disease. The nature of disease was determined only by macroscopic examination of diseased fish.

* Papers indicated by an asterisk are of special importance to fish culturists.

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